User's Manual

Test Equipment Depot
1-800-517-8431

EXTECH INSTRUMENTS

Digital Photo Tachometer

Model 461893

WARRANTY

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at www.extech.com (click on 'Contact Extech' and go to 'Service Department' to request an RA number). A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

Introduction

Congratulations on your purchase of the Extech 461893 Photo Tachometer. This device provides non-contact measurements over a wide range (5 to 100,000 RPM). A reflective mark on the object to be measured is used as a target for the meter's integral light beam. Careful use of this meter will provide years of reliable service.

Specifications

General Specifications

Meter circuitry	Custom one-chip LSI microprocessor
Time base	Quartz crystal
Display	5-digit (99999 count) 0.4" (10mm) multi-function LCD
Measurement	5 to 99,999 RPM in 2 ranges
Range select	Automatic
Data Recording	LAST / MIN / MAX readings stored for later recall
Sampling time	1 second (over 60 rpm)
Target distance	2 to 6" (50 to 150mm) depending on ambient light
Operating Temperature	32°F to 122°F (0°C to 50°C)
Power Supply	4 x 1.5V 'AA' batteries
Power Consumption	Approximately 150 mA
Weight	8.8 oz. (250 g) including battery
Size	6.7 x 2.8 x1.5" (170 x 72 x 37mm)
Accessories	Reflective tape (23") and carrying case

Range Specifications

Measurement	Range	Resolution	Accuracy
RPM	5 to 999.9 RPM	0.1 RPM	±(0.05% + 1 digit)
	1,000 to 99,999 RPM	1 RPM	±(0.05% + 1 digit)

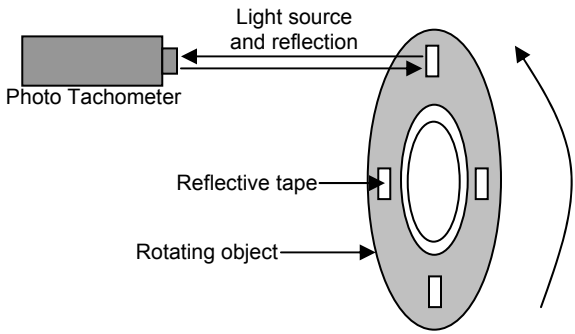
Meter Description

1. Photo source
2. LCD Display
3. Memory record button
4. Battery compartment on rear
5. Measure button

Meter Operation

RPM Measurements

1. Apply a small piece of reflective tape to the object under test as shown below.
2. Point the meter's photo source at the tape on the object and press the Measure button. Hold the meter from 2 to 6" (50 to 150mm) from the reflective tape depending on ambient light.
3. Check that the Monitor icon flashes on the LCD indicating that the meter is sensing a reflection from the tape. If the monitor does not appear check that the light source is hitting the reflective tape at a 90^{o} angle.
4. Release the Measure button when the display stabilizes (2 seconds approx.). Note the LCD RPM reading.
5. If the RPM value is < 50, apply additional pieces of reflective tape (four pieces are shown below). Divide the LCD reading by the number of reflective tapes to compute the actual RPM (Actual RPM = Reading / 4).



Memory Record and Recall

The meter automatically records the Minimum and Maximum readings. These represent the lowest and highest readings measured from the moment the Measure button is pressed to the moment it is released. The Last reading is also recorded; this is the last measurement taken before the Measure button is released. These stored readings can be displayed on the LCD using the Memory button as described below:

1. Press once and hold: The Last reading is displayed followed by "LA"
2. Press again and hold: The Maximum value is displayed followed by the word "UP"
3. Press again and hold: The Minimum value is displayed followed by "dn"

Special Measurement Considerations

1. The non-reflective area of the object under test must always be greater than the reflective tape area.
2. If the shaft of the object under test is reflective, it should be covered with black tape or paint before attaching reflective tape.

Battery Replacement

The low battery indication appears as "LO" on the display. To replace the batteries:

1. Slide the rear cover off the battery compartment in the direction indicated by the arrow.
2. Replace the four 1.5V 'AA' batteries and the battery compartment cover.
3. Remove the batteries if the instrument will be stored for long periods of time.